

SPIN TRAPPING PHARMACEUTICAL COMPOSITIONS  
AND METHODS FOR USE THEREOF

Abstract of the Invention

Spin trapping compositions in general have now been discovered to be effective in treating a variety of disorders, including disorders such as those arising from ischemia, infection, inflammation, exposure to radiation or cytotoxic compounds, not just of the central and peripheral nervous systems but of peripheral organ disease having a wide variety of etiologies. In the preferred embodiment, the compositions for treating tissue damage from ischemia contain PBN, or active derivatives thereof, in a suitable pharmaceutical carrier for intravenous, oral, topical, or nasal/pulmonary administration. Other preferred spin-trapping agents include 5,5-dimethyl pyrroline N-oxide (DMPO),  $\alpha$ -(4-pyridyl-1-oxide)-N-tert-butyl nitron (POBN), and (TEMPO) and spin-trapping derivatives thereof. Examples of derivatives of PBN include halogenated derivatives, bifunctional derivatives, conjugates with drugs or targeting molecules, dimers and cyclodextran polymers of PBN. Many different disorders can be treated using these compounds, including diseases or disorders of the central and peripheral nervous systems, and disorders arising from ischemia, infection, inflammation, oxidation from exposure to radiation or cytotoxic compounds, as well as due to naturally occurring processes such as aging.

SUBSTITUTE SHEET

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